University Of Petroleum and Energy Studies,

Dehradun

DevOps

(Restaurant Website)

Submitted by:

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DevOps Project Name - Restaurant Website

Restaurant website named Foodie is built with HTML , CSS , JavaScript.

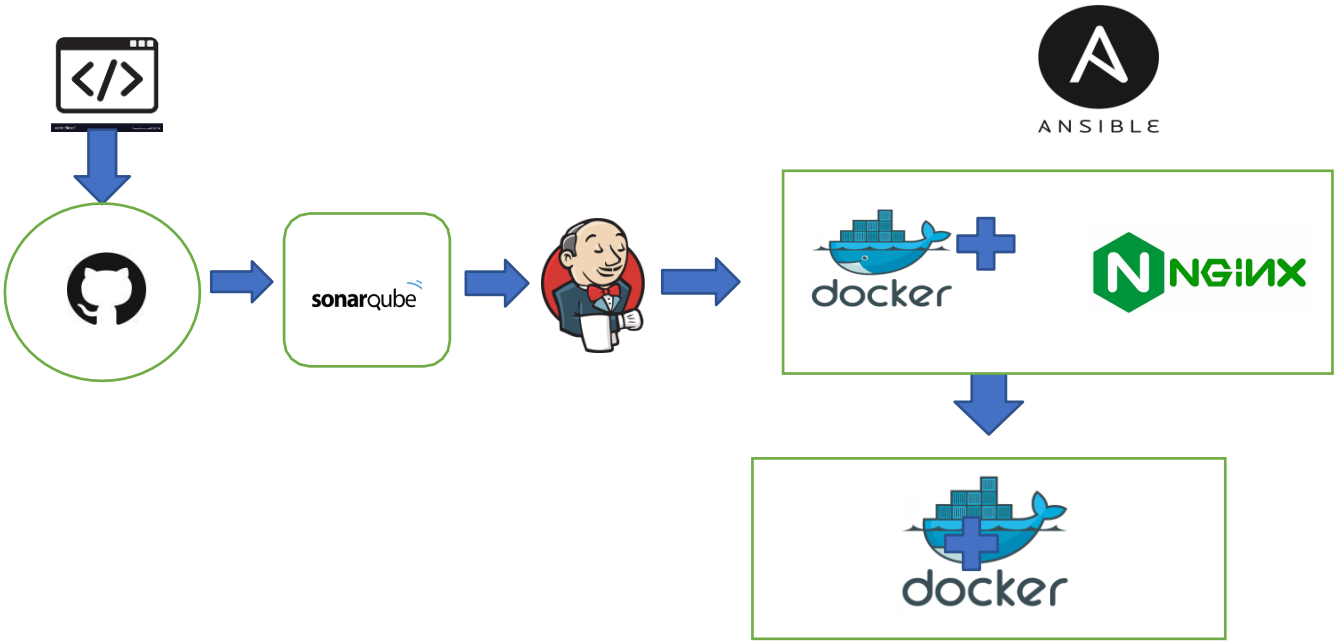
Product description : We are dedicated to providing our customers with an exceptional dining experience, from the moment you enter our establishment to the last bite of your meal. Our restaurant offers a cozy and inviting atmosphere, perfect for a romantic dinner for two or a family gathering.

Our menu features a wide variety of dishes, expertly prepared by our talented chefs using only the freshest and highest-quality ingredients. Whether you're in the mood for classic comfort food or something more adventurous, we have something to satisfy every palate.

In addition to our delicious food, we also offer an extensive selection of wines, beers, and cocktails to complement your meal. Our knowledgeable staff is always on hand to help you choose the perfect pairing for your dish.

At our restaurant, we pride ourselves on our exceptional service. Our friendly and attentive staff will ensure that your dining experience is nothing short of perfect.

DevOPs ToolChain:



Scrum - Product Backlog

- Brainstorming for technologies to use and work on it
- Writing front-end & Back-end Logic
- Creating basic GUI of the Restaurant Website
- Restaurant Website Home page
- Adding and creating images for website through Canva
- About section of website - Provides information about the restaurant, such as its history, mission, and staff.
- Display photos and videos of the restaurant and its food.
- Services page with motion functionality
- Our Menu and Review page of restaurant website
- Enable customers to leave reviews and ratings for the restaurant and menu items.
- Display average rating for the restaurant and each menu item.
- Cart option for view order and check out
- Creating accounts on JIRA
- Ensure that the DevOps environment is properly set up and ready to use.
- Set up a CI pipeline with Jenkins to automate the build, test, and deployment processes.
- Configure Jenkins to monitor the GitHub repository for code changes and trigger builds automatically.
- Creating a Jenkins Pipeline
- Use Git for version control of the codebase.
- Create a GitHub repository and configure it to work with the Jenkins pipeline.
- code changes are properly reviewed and approved before being merged into the main branch.
- Use of Ansible to automate the deployment process of the restaurant website to the production environment.
- Ensuring that the deployment process is reliable, repeatable, and scalable.
- Use Selenium to automate functional and regression testing of the website.
- Set up automated tests to run as part of the Jenkins pipeline.
- Ensure that the tests are thorough, cover all critical use cases, and provide useful feedback.
- Use of tools like Ansible and Jenkins to automate security checks and ensure that the website is always up to date with the latest security patches.
- Use Ansible to automate the configuration of the infrastructure for the restaurant website.
- Ensure that the infrastructure is properly documented, versioned, and reproducible
- Use of tool JIRA to facilitate communication and collaboration among team members.
- Ensure that team members are properly trained and equipped to use the DevOps tools effectively.
- Implement caching, load balancing, and other techniques to improve the website's speed and responsiveness.
- Using SonarQube for Continuous Inspection
- Finalizing the GUI to perform the main functionality
- Testing the back-end for all possible test cases
- Making the GUI more user friendly
- Deployment of the the application on docker
- Final testing of the complete application
- Integrating other DevOps tools given below.

Webpage includes:

Home Page: The home page of the website could have a banner image of the restaurant's interior or signature dish, with the restaurant's name and logo overlaid. The page could also include a brief description of the restaurant and its cuisine, along with links to the menu, reservation page, and social media profiles.

Menu Page: The menu page could include a list of the restaurant's dishes, categorized by type (appetizers, entrees, desserts, etc.), along with prices and descriptions. The page could also include images of the dishes, along with allergen information and any dietary restrictions.

Reservation Page: The reservation page could allow customers to select the date, time, and number of guests for their reservation, and to submit their contact information. The page could also include information on the restaurant's policies and procedures for reservations, such as cancellation policies or minimum party size requirements.

About Us Page: The about us page could provide more detailed information about the restaurant, such as its history, mission, and values. The page could also include information about the restaurant's chefs and staff, along with photos and bios.

Our Menu : It includes information related to foods and cost of it.

Review Page : A review page is a section of a website where users can share their opinions and feedback about products, services, or experiences they have had with a company. These reviews can be helpful for potential customers who are considering using the company's offerings. A well-designed review page can be a valuable tool for businesses to increase customer satisfaction, engagement, and loyalty.

Overall, a restaurant website made with HTML, CSS, and JavaScript could provide customers with an easy-to-use and informative platform for learning about the restaurant, making reservations, and placing orders. The website could also help the restaurant to build its brand and increase its online presence.

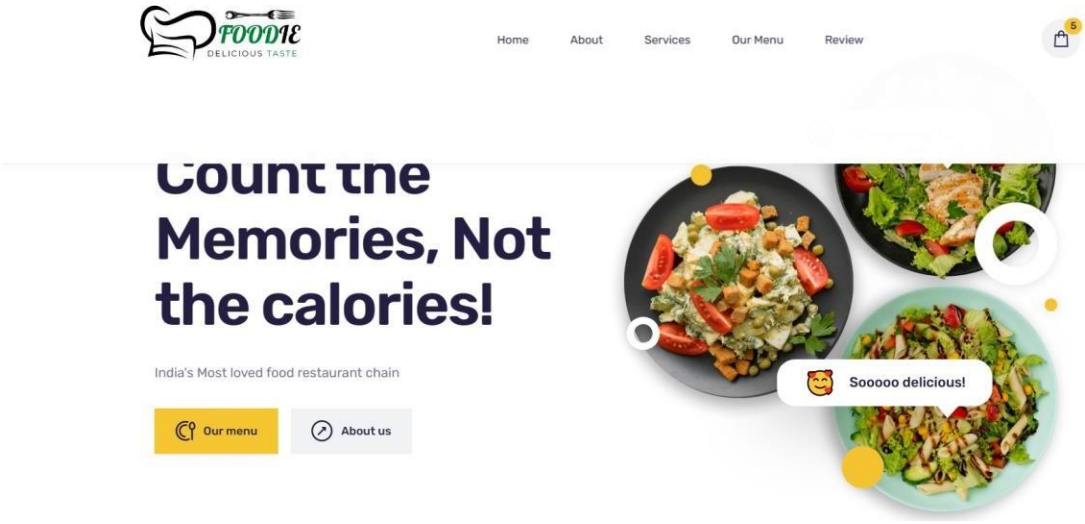


Figure 1 : Home Page

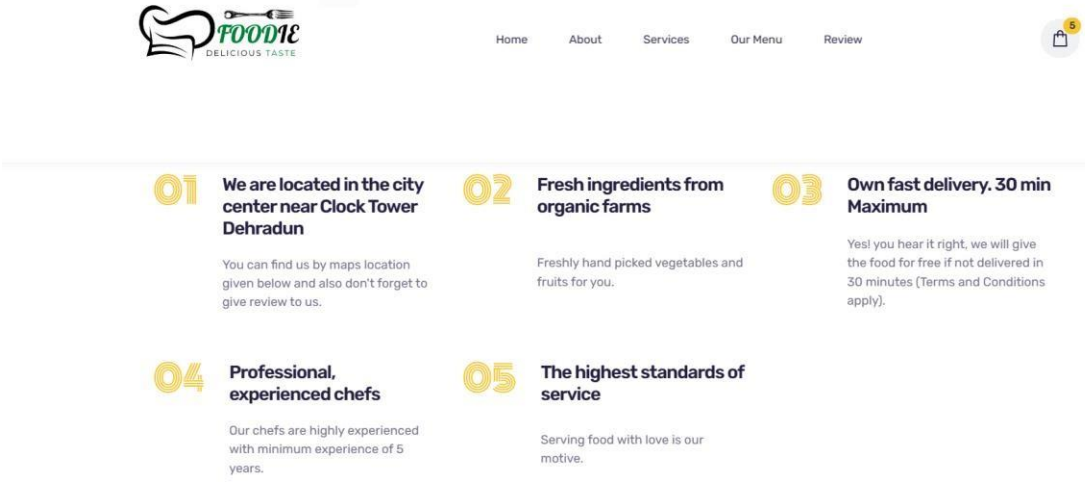


Figure 2 : Service Page

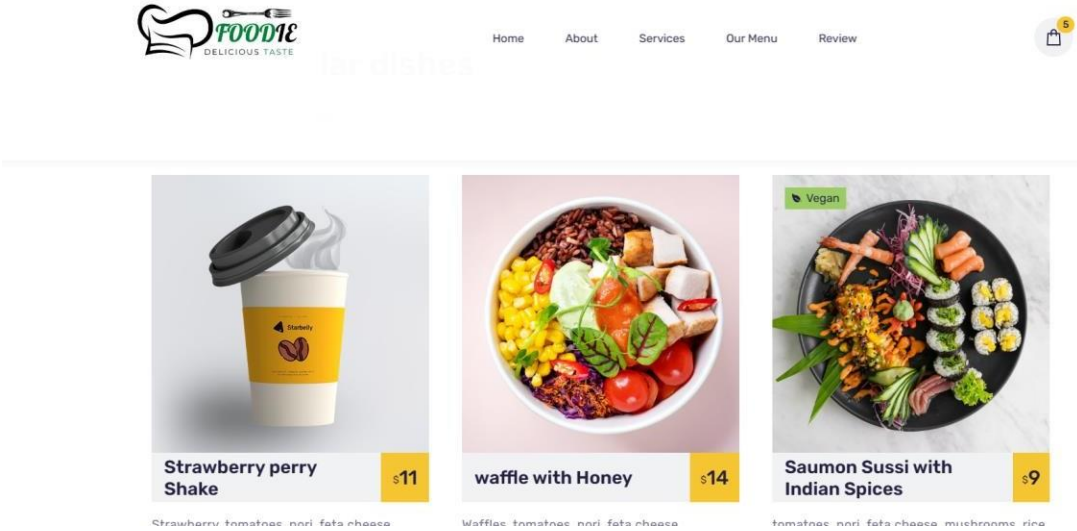


Figure 3 : Our Menu Page

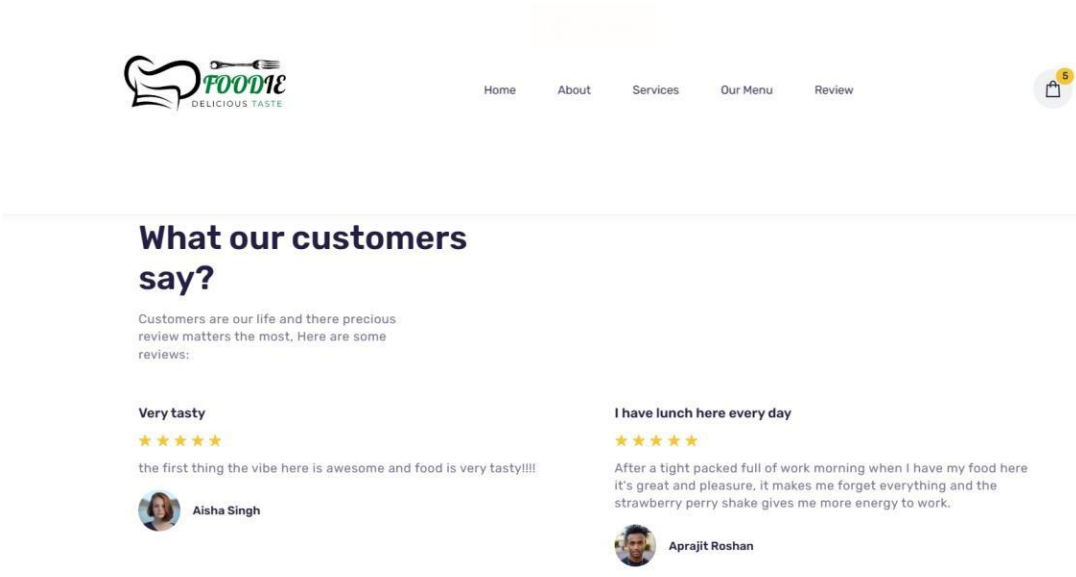


Figure 4 : Review Page

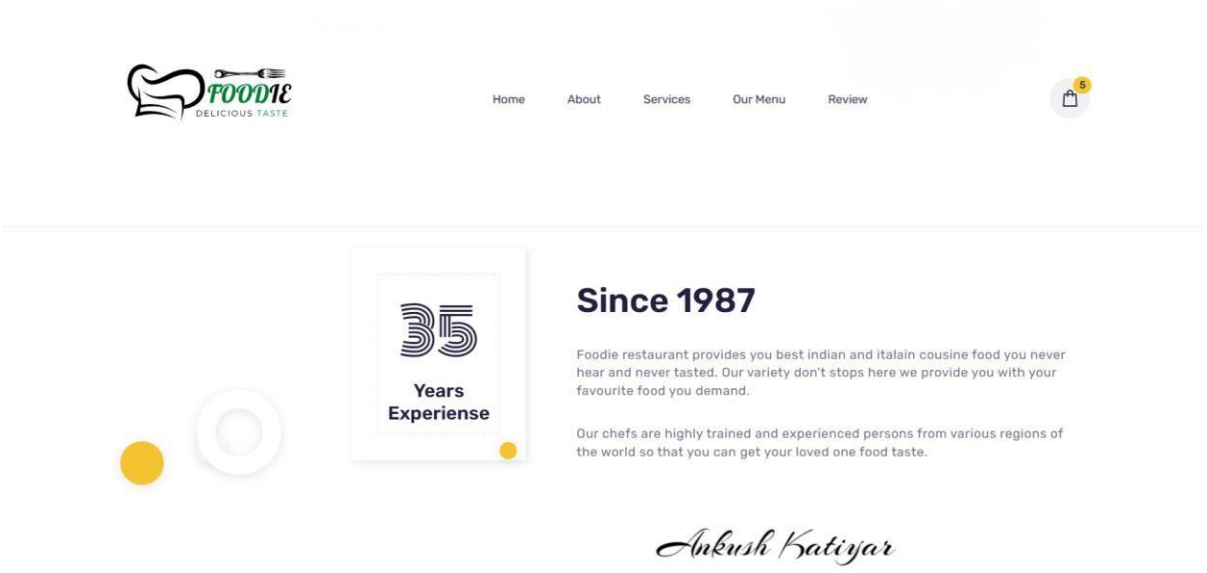


Figure 5 : About Page

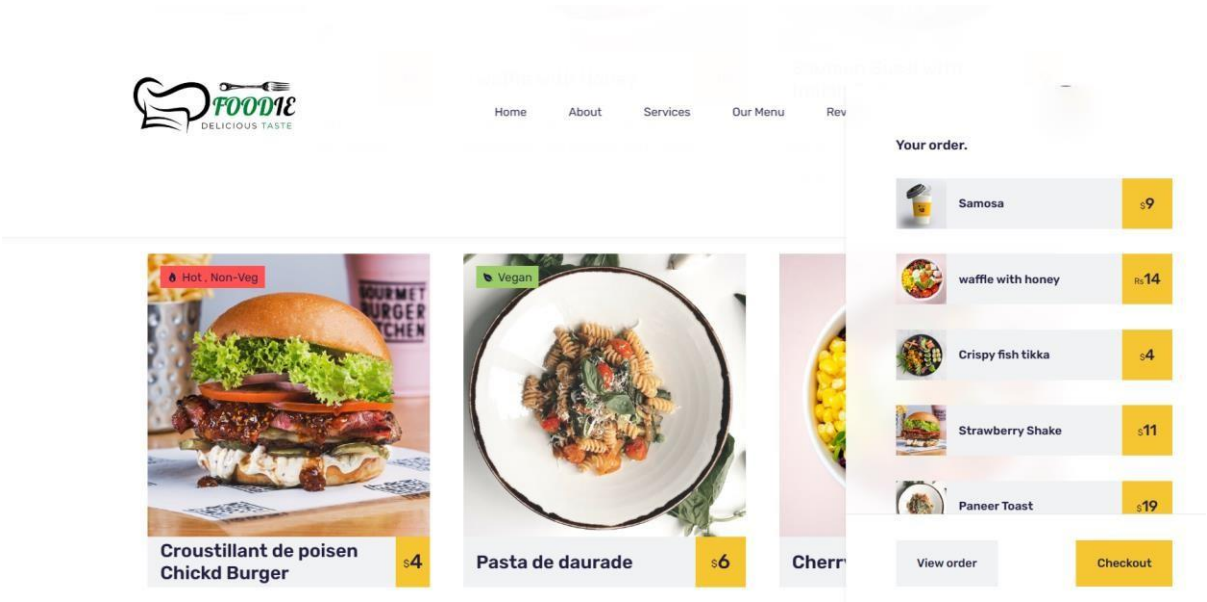


Figure 6 : Cart Page (Your Order page)

Deploying a restaurant website using AWS involves several steps. Here is a general overview of the process:

Create an AWS account: If you do not have an AWS account, you will need to create one. This will involve providing your personal and payment information.

Choose a server: AWS offers several server options for hosting your website. The most common options are Amazon Elastic Compute Cloud (EC2) and AWS Lightsail. EC2 is more flexible and scalable, while Lightsail is easier to use and less expensive.

Launch an instance: Once you have chosen a server, you will need to launch an instance. This involves selecting an operating system, instance type, and storage options.

Configure security settings: You will need to configure security settings to ensure that your website is secure. This will involve setting up firewalls, SSL certificates, and other security measures.

Install and configure web server software: Once your instance is up and running, you will need to install and configure web server software such as Apache or Nginx.

Deploy your website files: You will need to upload your website files to your server using FTP or a file manager. This will include your HTML, CSS, JavaScript, and other files.

Configure DNS settings: You will need to configure DNS settings to ensure that your website is accessible from the internet. This will involve setting up a domain name and configuring DNS records.

Test your website: Once your website is deployed, you will need to test it to ensure that it is functioning properly. This will involve checking links, testing forms, and verifying that all functionality is working as expected.

AWS provides detailed documentation and tutorials to help you through the deployment process. You may also want to consider using AWS Elastic Beanstalk, which is a platform-as-a-service (PaaS) that automates much of the deployment process.

TOOLS Used :

Git

Git is a distributed version control system that was developed by Linus Torvalds in 2005. It is a free and open-source software that is widely used by developers around the world to manage and collaborate on code. Git is designed to be fast, efficient, and flexible, making it an ideal tool for both small and large projects.

Here are some key features of Git:

Distributed: Unlike centralized version control systems, Git is distributed, which means that every user has a complete copy of the repository. This makes it easy for developers to work on code locally, without the need for a constant connection to a server.

Version Control: Git allows developers to track changes to code over time, making it easy to roll back changes or revert to previous versions if necessary.

Branching: Git allows developers to create multiple branches of code, which can be used for testing, feature development, or other purposes. This makes it easy to work on different parts of the codebase in parallel, without interfering with each other's work.

Merging: Git allows developers to merge different branches of code back into the main codebase, which can help to ensure that changes are integrated smoothly and without conflicts.

Collaboration: Git allows developers to collaborate on code with others, whether they are working in the same location or remotely. Git makes it easy to share code, review changes, and manage contributions from multiple people.

Overall, Git is a powerful and flexible tool that is essential for modern software development. Whether you are working on a small project or a large-scale application, Git can help you to manage your code effectively and collaborate with others more easily.

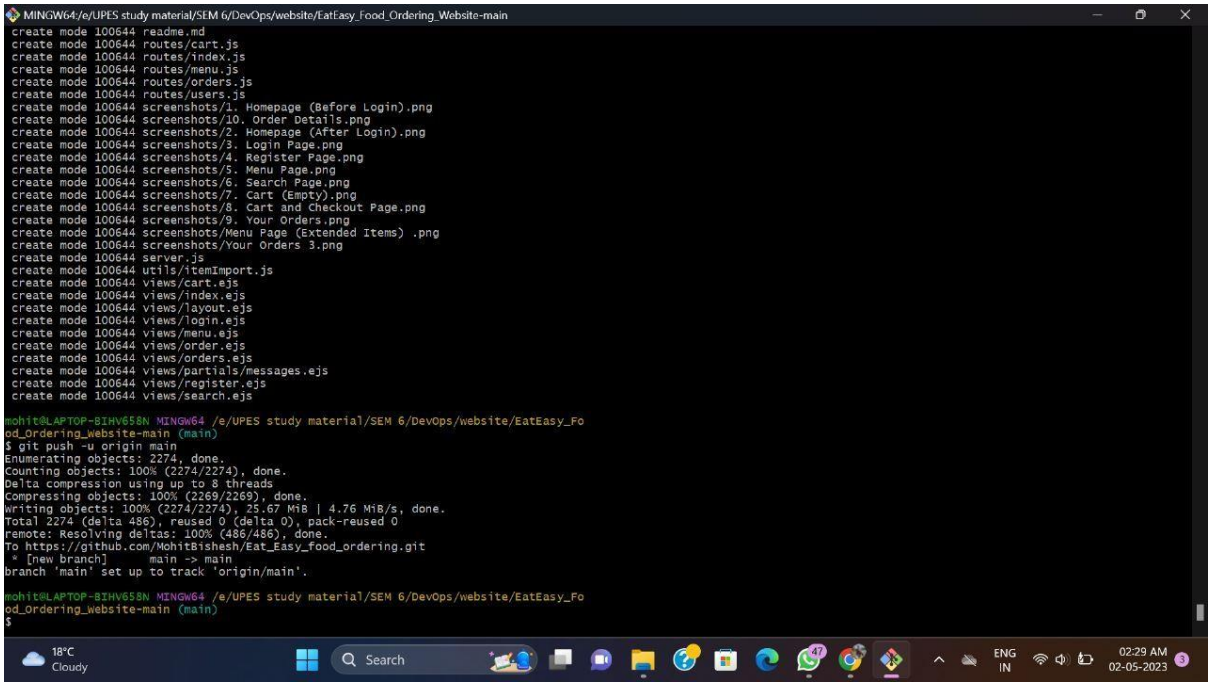


Figure 7 : Git bash implementation

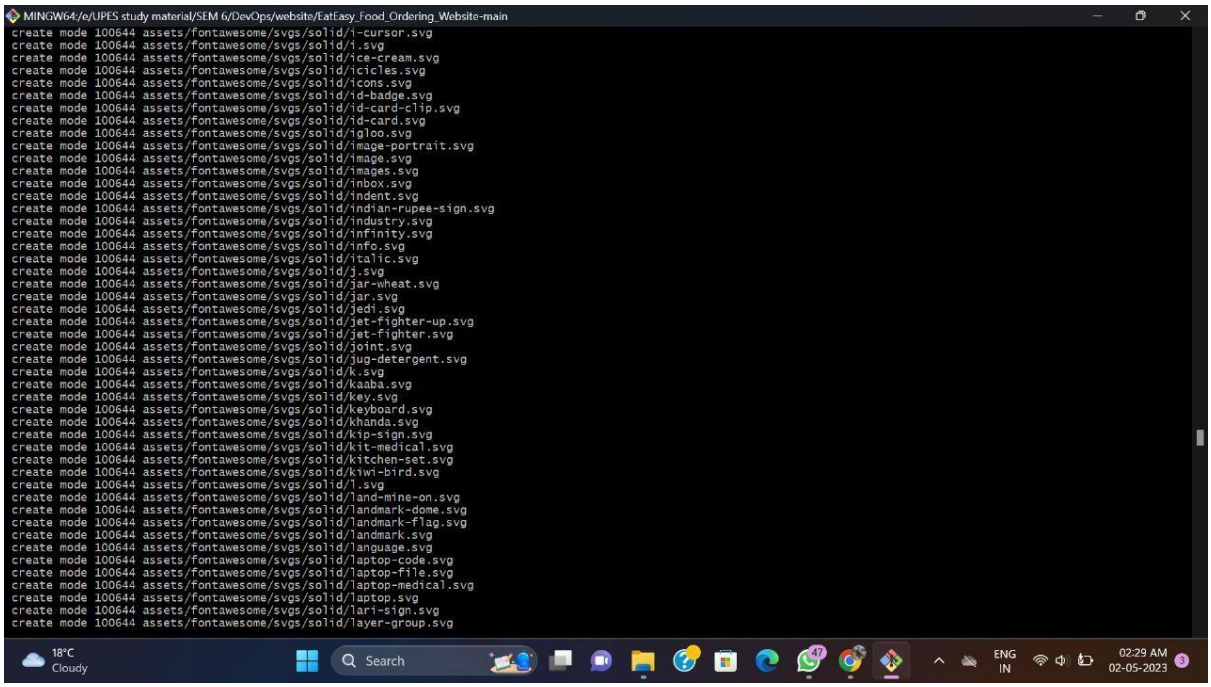


Figure 8 : Git bash implementation with commands

Github

GitHub is a web-based platform for software development that is built on top of Git, the popular version control system. It was founded in 2008 and has since become one of the most widely used tools in the software development industry. GitHub provides a range of features that make it easy for developers to collaborate on code, share their work with others, and manage software projects more efficiently.

Documentation: GitHub provides tools for documenting code and projects, including a wiki and a built-in web page builder. This makes it easy to provide documentation and other resources for users and contributors.

Integrations: GitHub integrates with a range of other tools and services, including project management tools, continuous integration and deployment (CI/CD) systems, and code quality tools. This makes it easy to incorporate GitHub into existing development workflows.

Overall, GitHub is a powerful and versatile platform that provides a range of tools for software development and collaboration. Whether you are a beginner or an experienced developer, GitHub can help you to manage your code, collaborate with others, and build better software.

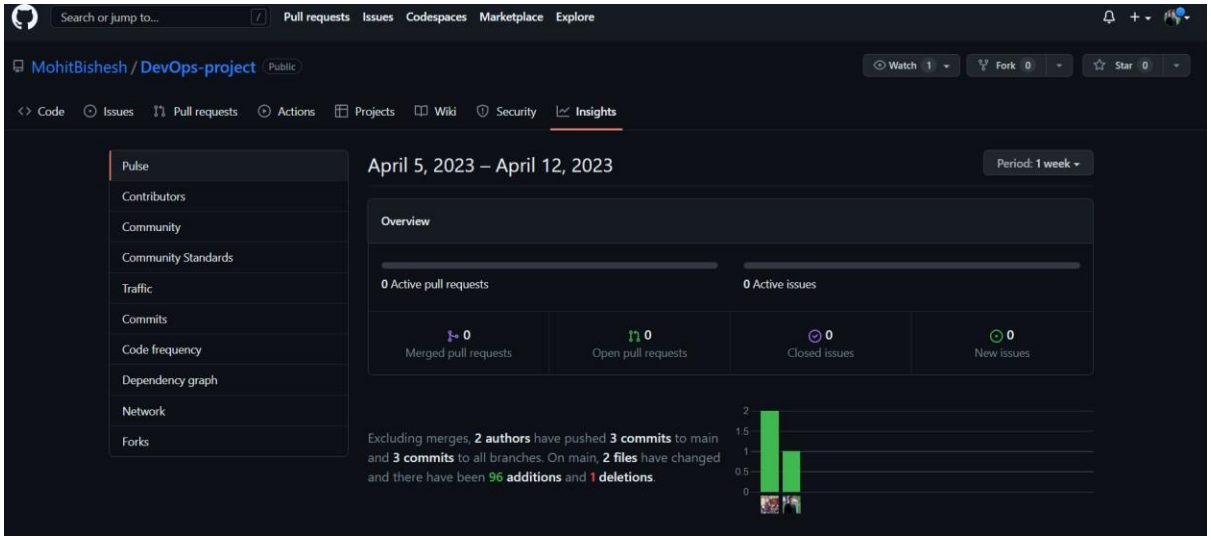


Figure 9 : Github Pulse

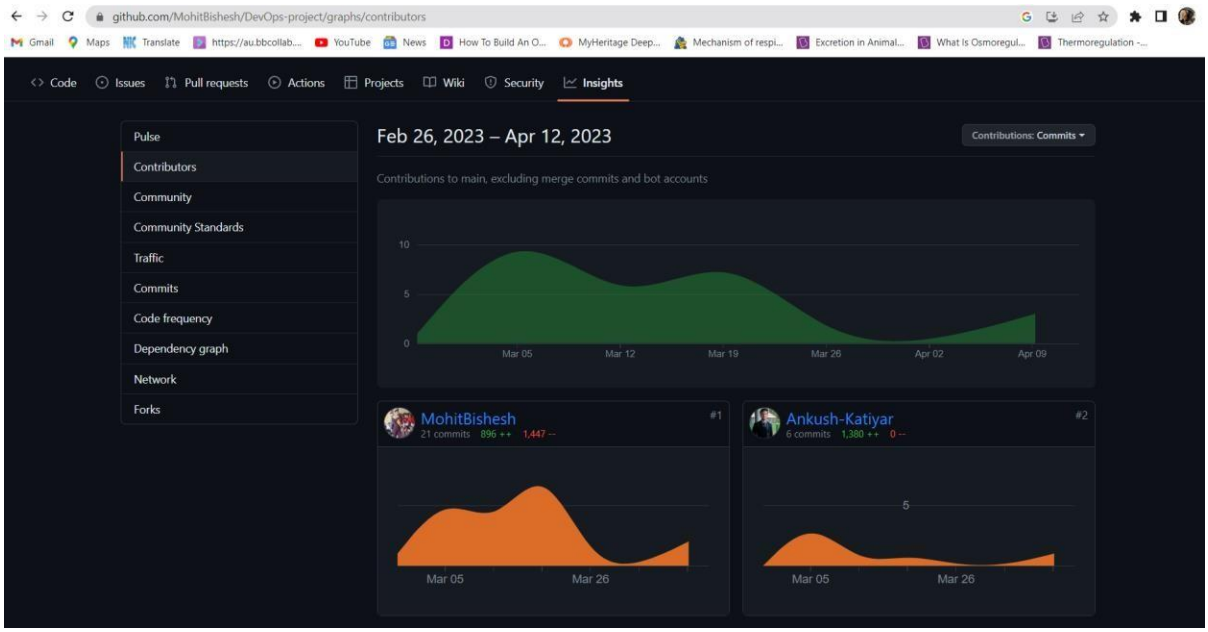


Figure 10 : Contributers Data (Commits)

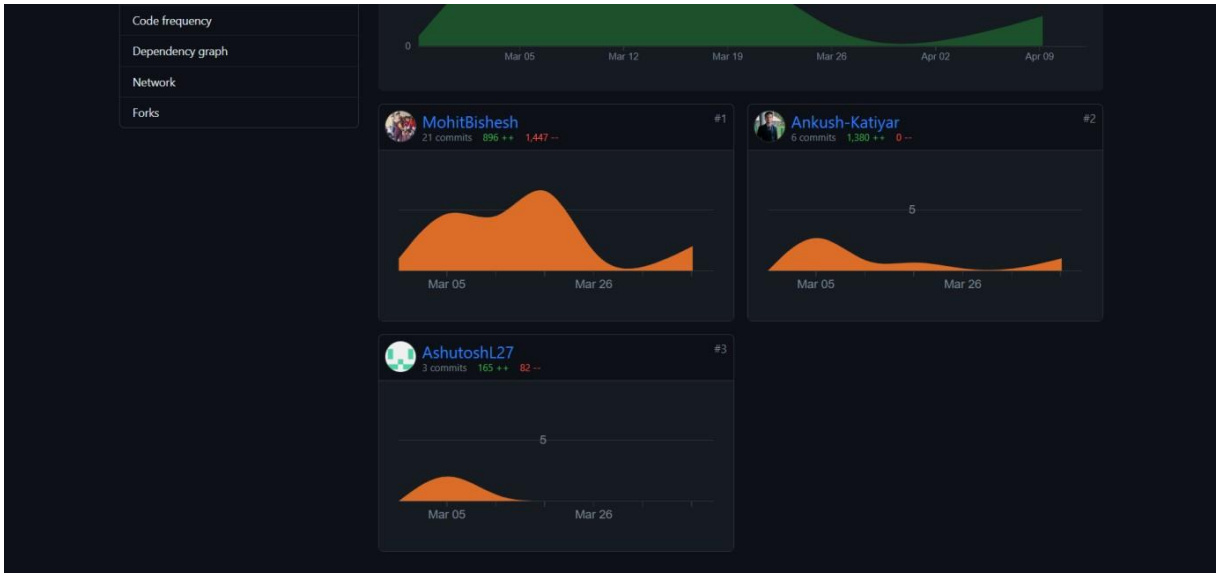


Figure 11 : Contributers Data (Commits)

JIRA

Jira is a project management tool developed by Atlassian that is widely used by software development teams to plan, track, and manage their work. It is particularly popular among Agile teams, as it provides a range of features that are well-suited to Agile methodologies such as Scrum and Kanban.

Here are some key features of Jira:

Issue tracking: Jira provides a powerful issue tracking system that allows teams to create and manage issues, bugs, and feature requests. Issues can be assigned to team members, prioritized, and tracked through to resolution.

Agile tools: Jira provides a range of Agile tools, including Scrum and Kanban boards, sprint planning, and backlog management. These tools make it easy for Agile teams to plan their work, track progress, and adapt to changing requirements.

Reporting: Jira provides a range of reporting tools that allow teams to track progress, measure performance, and identify areas for improvement. Reports can be customized to show the data that is most relevant to the team's needs.

AWS EC2

Amazon Elastic Compute Cloud (EC2) is a web service that provides resizable compute capacity in the cloud. It is a central part of Amazon Web Services (AWS), which offers a wide range of cloud computing services to individuals, businesses, and organizations.

With EC2, users can rent virtual machines (called instances) on a pay-as-you-go basis. These instances can be configured to run various operating systems and software applications, making it possible for users to run their own applications in the cloud.

EC2 provides a scalable and secure platform for deploying and managing applications in the cloud. It allows users to launch instances in minutes, scale up or down as needed, and pay only for the resources they use. EC2 offers a wide range of instance types optimized for different workloads, such as compute-intensive, memory-intensive, storage-intensive, and GPU-intensive workloads.

Jenkins

Jenkins is an open-source automation server that is widely used in DevOps processes. It is a popular tool for continuous integration (CI) and continuous delivery (CD), enabling teams to automate their software delivery processes.

Jenkins allows developers to automate the building, testing, and deployment of their software applications. Jenkins enables teams to automate the entire software delivery process, from code compilation to deployment, testing, and monitoring.

In a DevOps environment, Jenkins plays a crucial role in enabling teams to build, test, and deploy code rapidly and frequently. It facilitates collaboration between development and operations teams, ensuring that changes are tested and validated before they are deployed to production. This helps to reduce the risk of production failures and downtime, and enables teams to deliver new features and updates to their applications faster.

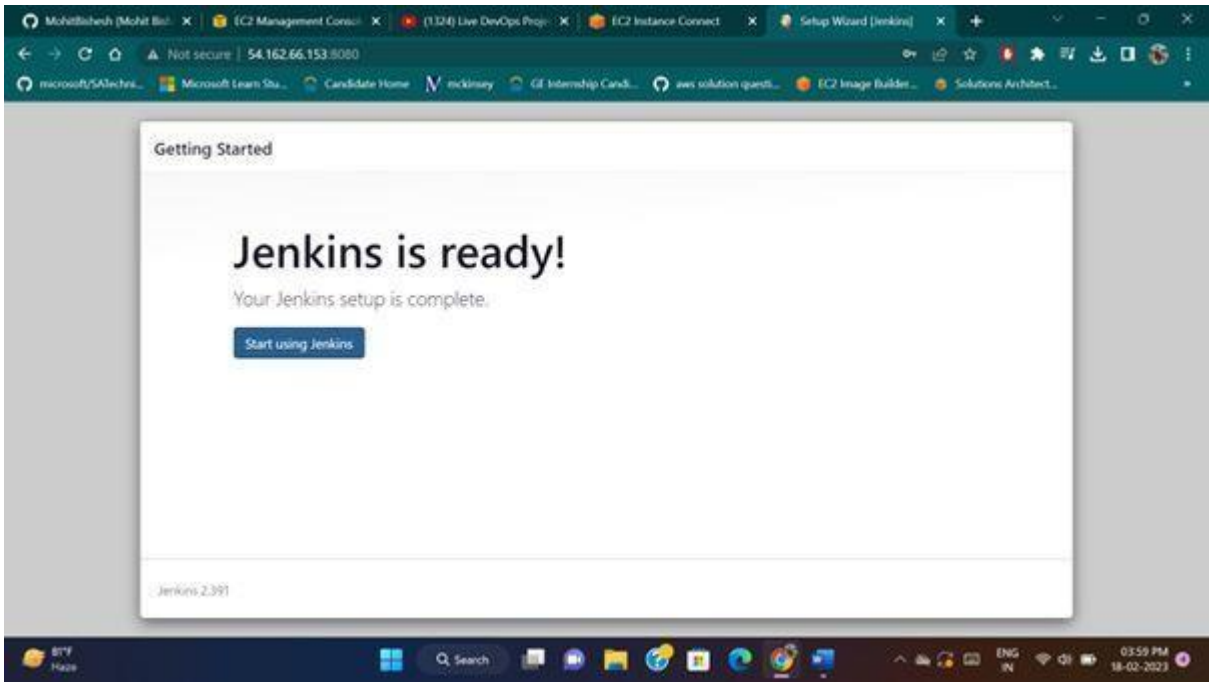


Figure 12 : Jenkins Ready

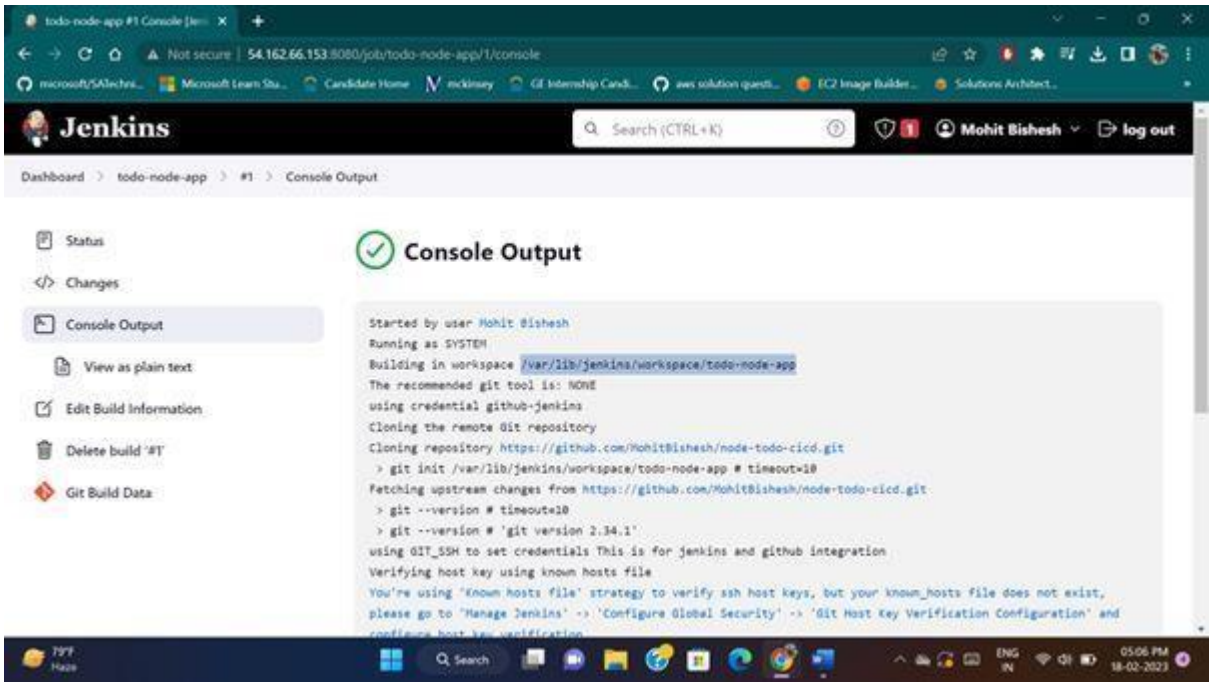


Figure 13 : Console Output

Anisible

Ansible is an open-source automation tool used for IT tasks such as configuration management, application deployment, orchestration, and task automation. It is developed by Red Hat and has become a popular tool in the DevOps community.

Ansible uses a declarative language called YAML to define playbooks, which are files that describe the desired state of a system. Playbooks can be used to configure servers, deploy applications, and perform other tasks that are common in IT operations.

One of the key features of Ansible is its agentless architecture. Unlike other automation tools that require agents to be installed on target systems, Ansible uses SSH and other standard protocols to connect to and control remote systems. This makes it easy to use and deploy, and reduces the complexity and overhead of managing agents on target systems.

Maven

Maven is a popular DevOps tool that is used for building and managing Java-based projects. It is an open-source build automation tool that helps developers manage their software projects, dependencies, and build processes. Maven simplifies the process of building and managing Java-based applications, allowing developers to focus on writing code rather than managing the build process.

With Maven, developers can define their project's structure, dependencies, and build process using an XML file called a pom.xml. The pom.xml file contains all the information about the project, including its dependencies, build settings, and plugins. This file also defines the project's lifecycle, which includes various phases such as compile, test, package, and deploy.

One of the key benefits of using Maven is that it automates many of the tasks involved in building and managing Java-based projects. This includes tasks such as downloading dependencies, compiling code, running tests, and creating executable JAR files. Maven also supports various plugins that allow developers to extend its functionality and perform additional tasks such as generating reports, deploying applications, and more.

Overall, Maven is a powerful tool that simplifies the process of building and managing Java-based projects. It provides a standardized approach to project management and helps to ensure that projects are built consistently and efficiently.

Figure 14 : MAVEN

SonarQube

SonarQube is a popular tool used for continuous code inspection, analysis, and quality management. It is used by developers to improve the quality of their code by detecting bugs, vulnerabilities, and code smells.

If implemented in a restaurant website, SonarQube can help ensure that the code for the website is of high quality and free of defects. This can result in a better user experience for customers and better performance for the website.

Some potential benefits of implementing SonarQube in a restaurant website include:

Improved code quality: SonarQube can detect issues such as code smells, duplications, and potential bugs in the codebase. By fixing these issues, developers can improve the overall quality of the code and make it more maintainable.

Enhanced security: SonarQube can identify potential security vulnerabilities in the codebase, such as SQL injection or cross-site scripting (XSS) attacks. By addressing these issues, developers can help protect the restaurant's website and its customers from malicious attacks.

Better performance: SonarQube can identify areas of the code that are inefficient or resource-intensive, which can impact the website's performance. By optimizing these areas, developers can ensure that the website runs smoothly and quickly.

Improved team collaboration: SonarQube can help team members collaborate more effectively by providing insights into code quality and issues. This can help teams identify areas for improvement and work together to address them.

Overall, implementing SonarQube in a restaurant website can help ensure that the website is of high quality, secure, and performs well. This can lead to a better experience for customers and ultimately help the restaurant grow its business.

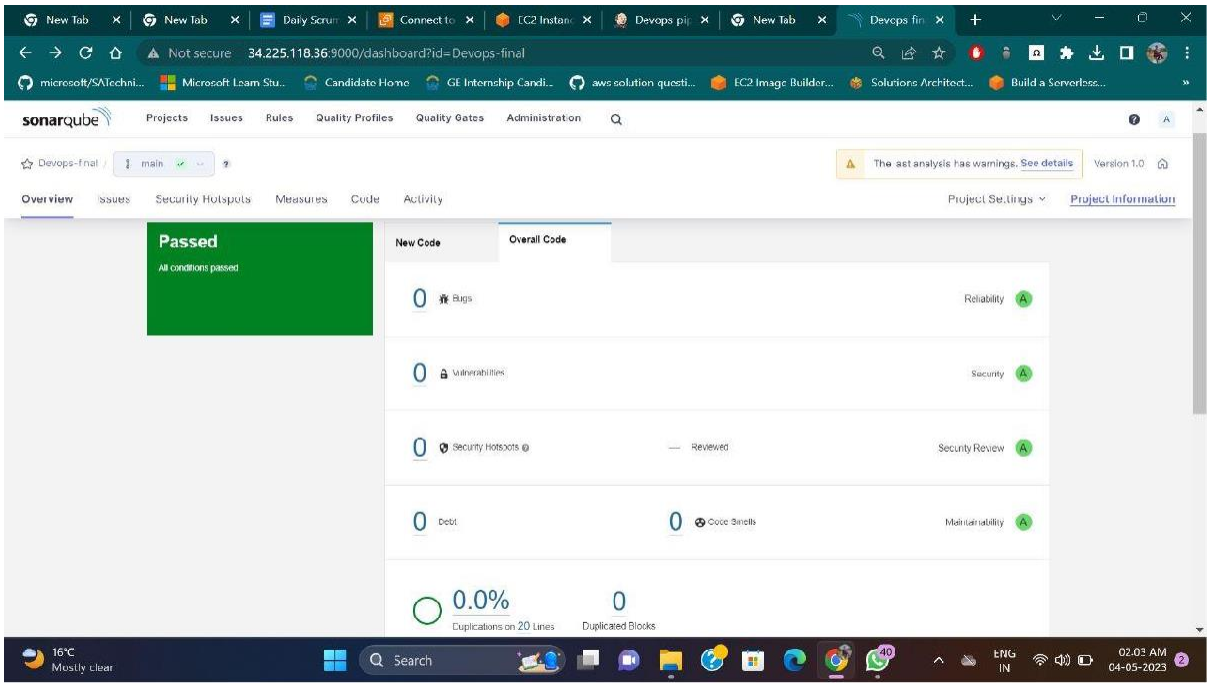
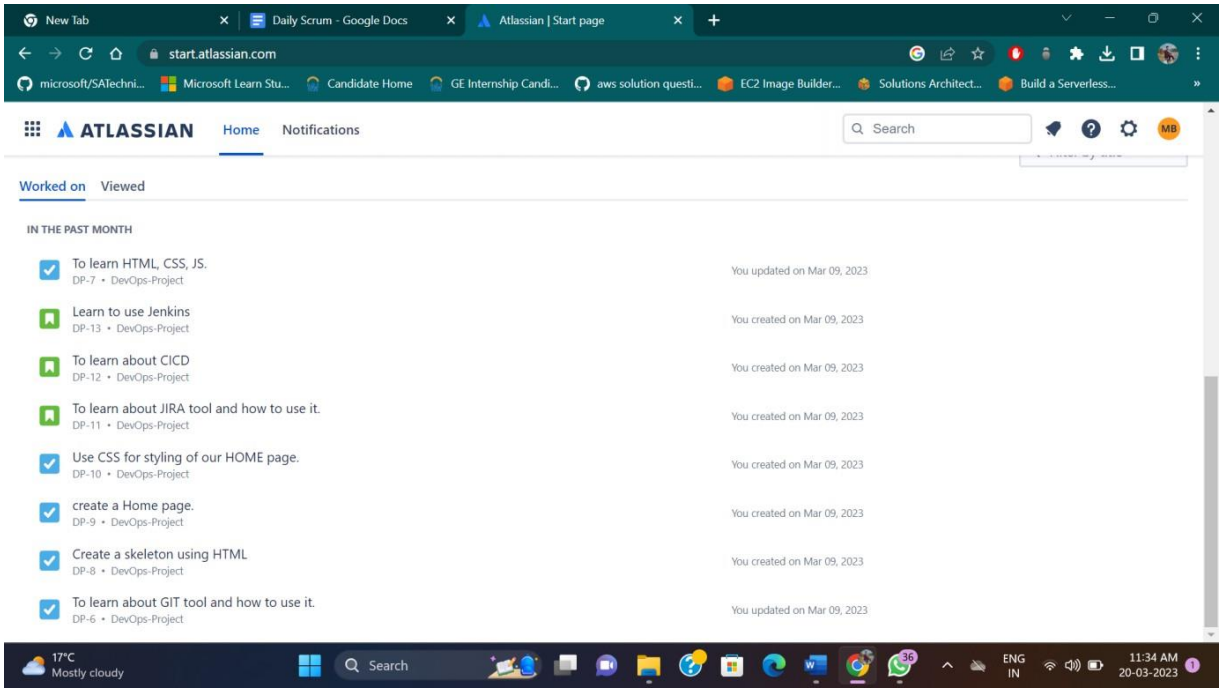


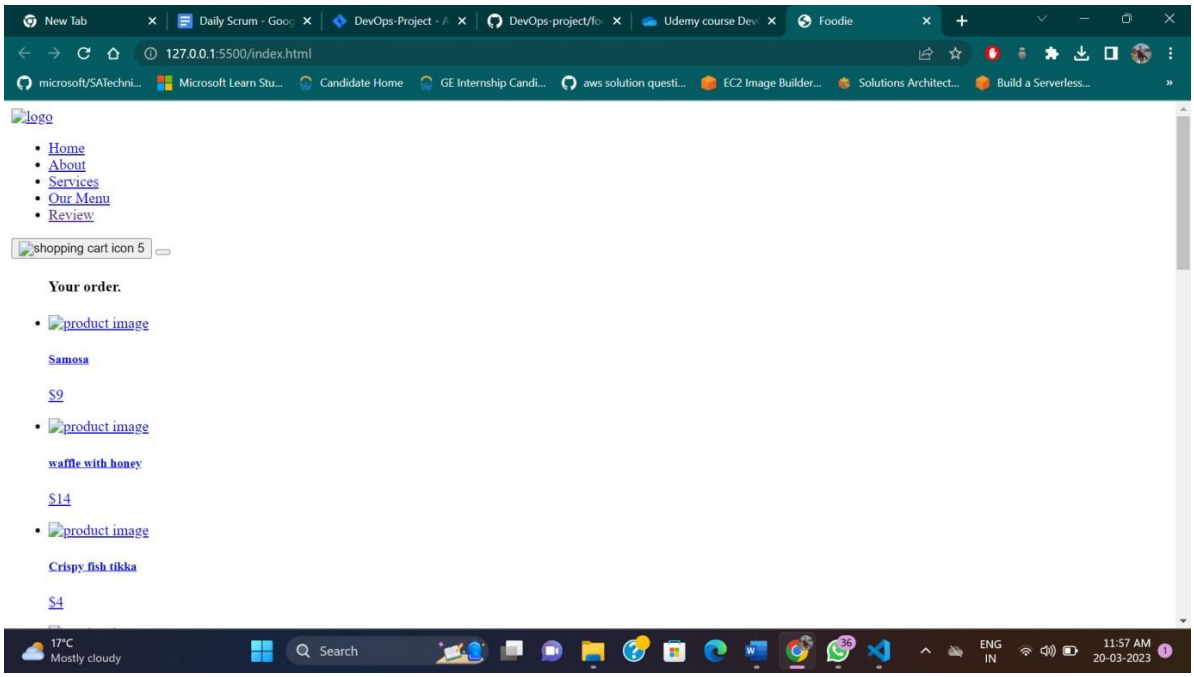
Figure 15 : SonarQube Dashboard

Sprint Backlog

Sprint 1:

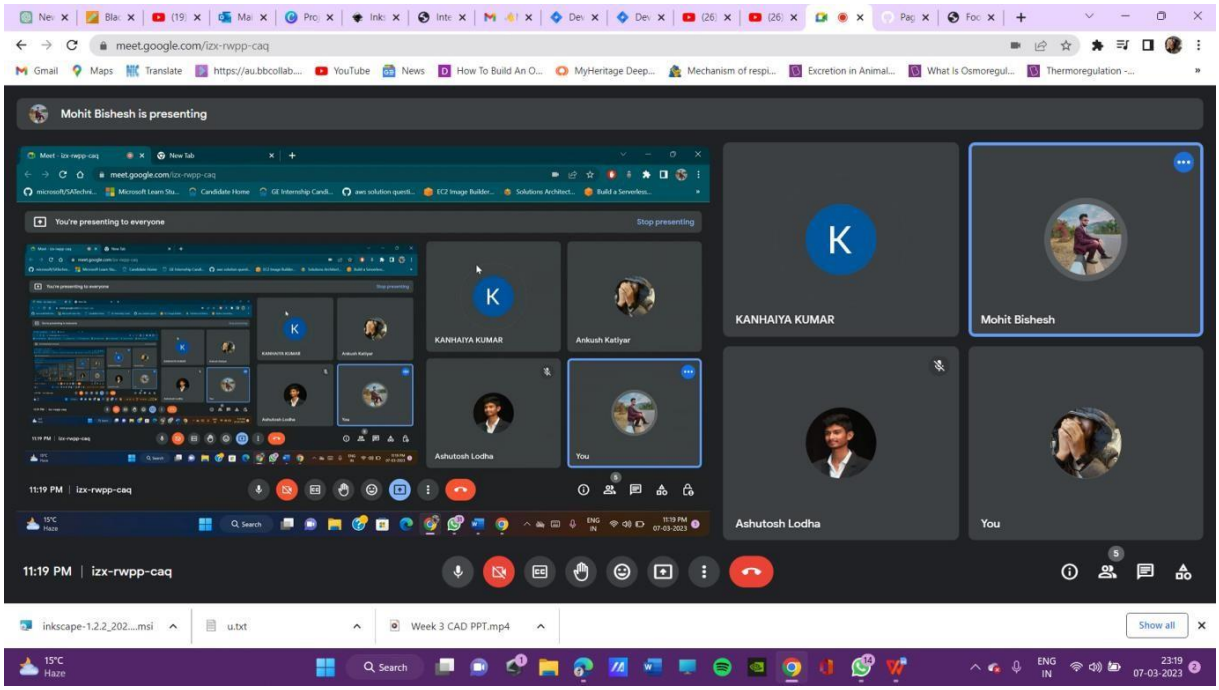


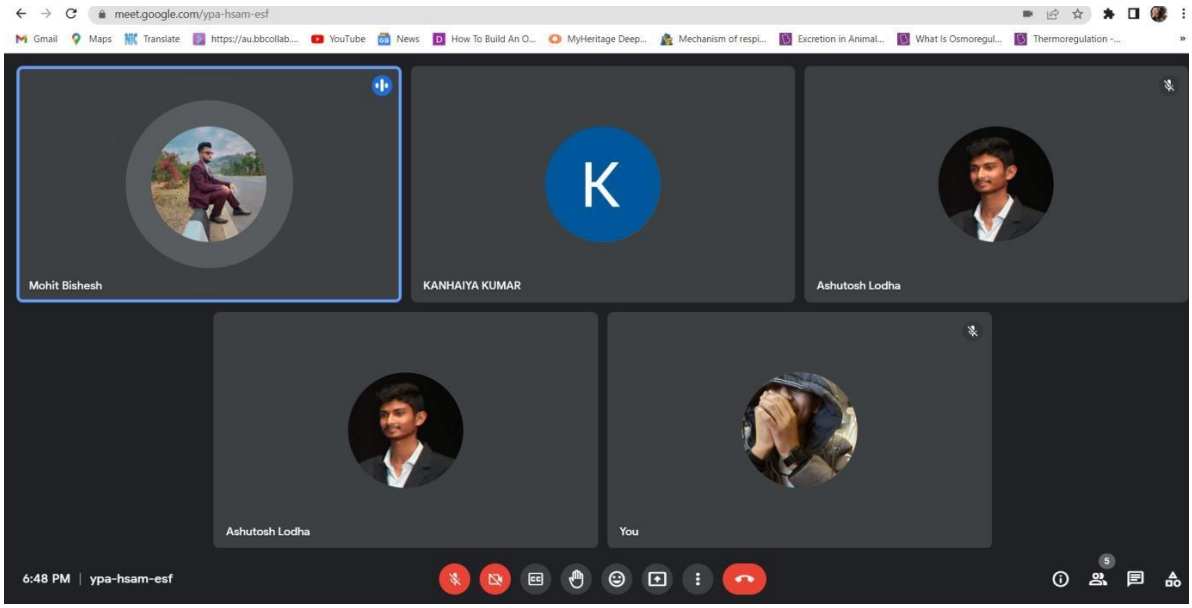
Website running.



Scrum meet

Platform : Google Meet





Sprint Review:

Our first sprint was started on 17/02/2023.

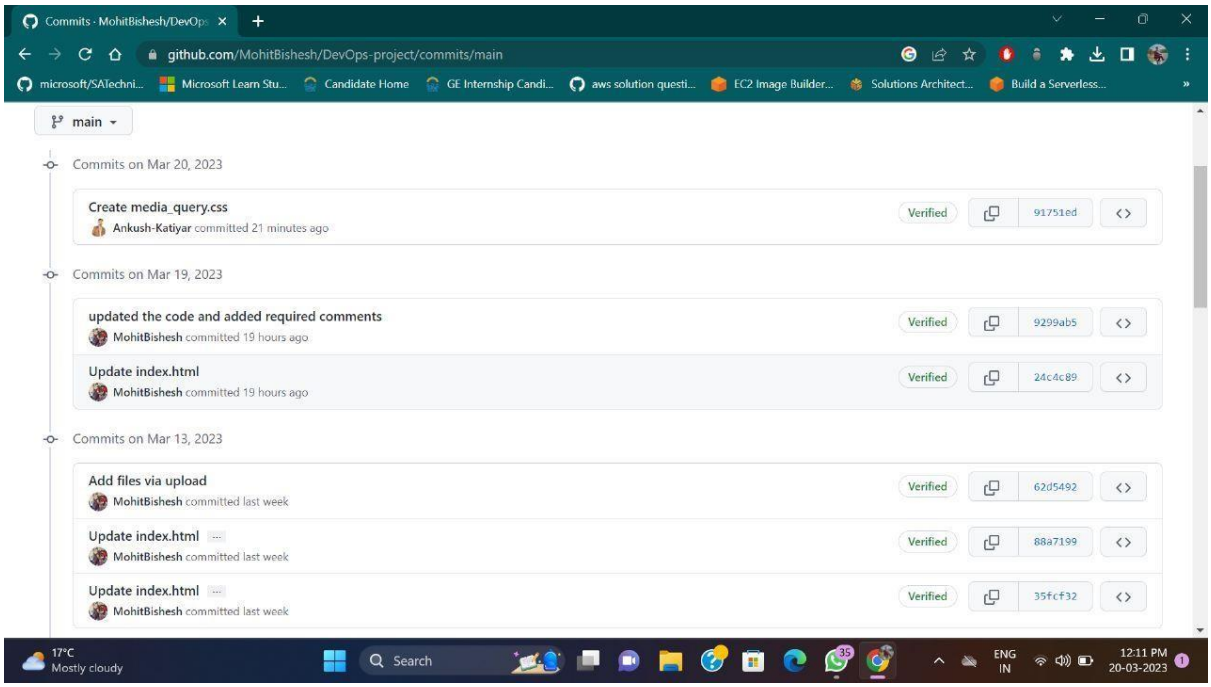
In our first sprint we have discussed our topic and about the services to be used in our project and gather the information about web development and learned about HTML CSS and JavaScript.

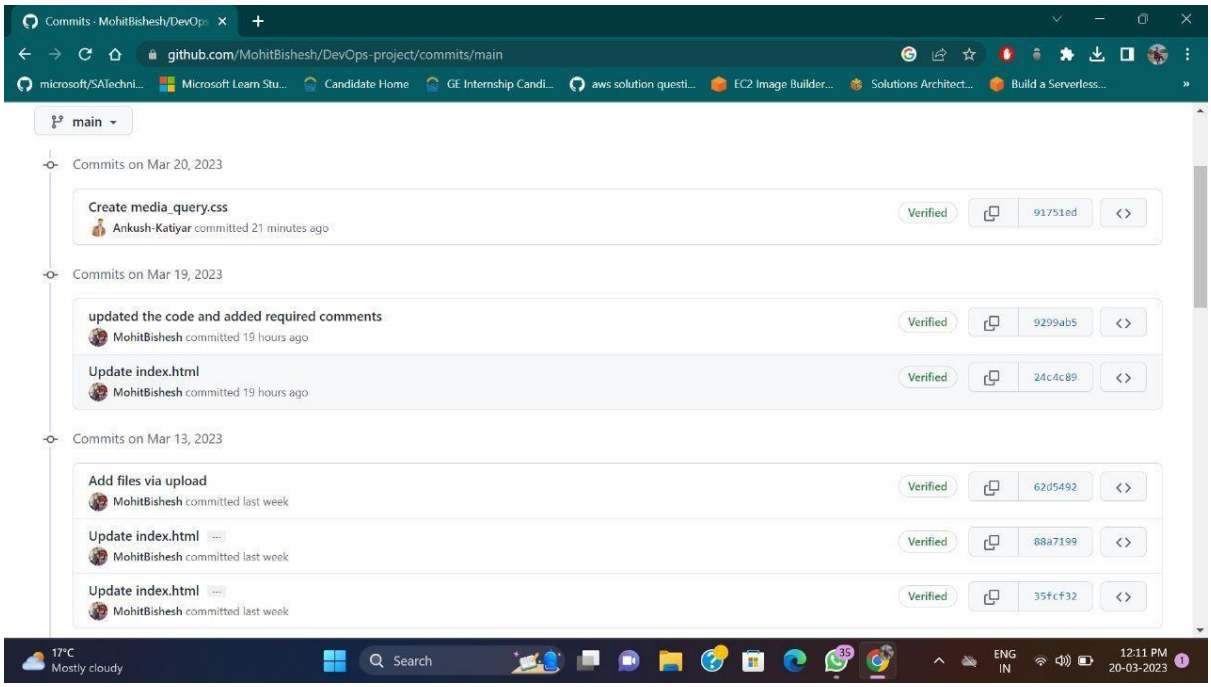
We have developed our first HTML page, the basic skeleton for our web app and added CSS.

We also learn about Git, GitHub and how to manage it and secondly gather the information and had hands on experience on tool for workflow management. We have also created and committed our HTML homepage HTML about section and HTML services section.

Our first sprint ends on 9th of March.

In our second sprint we have created EC2 instance on AWS and installed Jenkins over it. Then we have integrated with our GitHub repo to create a CICD pipeline. We have also gathered the information about CICD pipeline the mechanism and working of Jenkins. Also, we have committed the services section of the website an integrated hour easy to instance using to make a complete CICD pipeline




Commits · MohitBishesh/DevOps
github.com/MohitBishesh/DevOps-project/commits/main
main
Commits on Mar 20, 2023
Create media_query.css
Ankush-Katiyar committed 21 minutes ago
Verified
91751ed
Commits on Mar 19, 2023
updated the code and added required comments
MohitBishesh committed 19 hours ago
Verified
9299ab5
Update index.html
MohitBishesh committed 19 hours ago
Verified
24c4c89
Commits on Mar 13, 2023
Add files via upload
MohitBishesh committed last week
Verified
62d5492
Update index.html
MohitBishesh committed last week
Verified
88a7199
Update index.html
MohitBishesh committed last week
Verified
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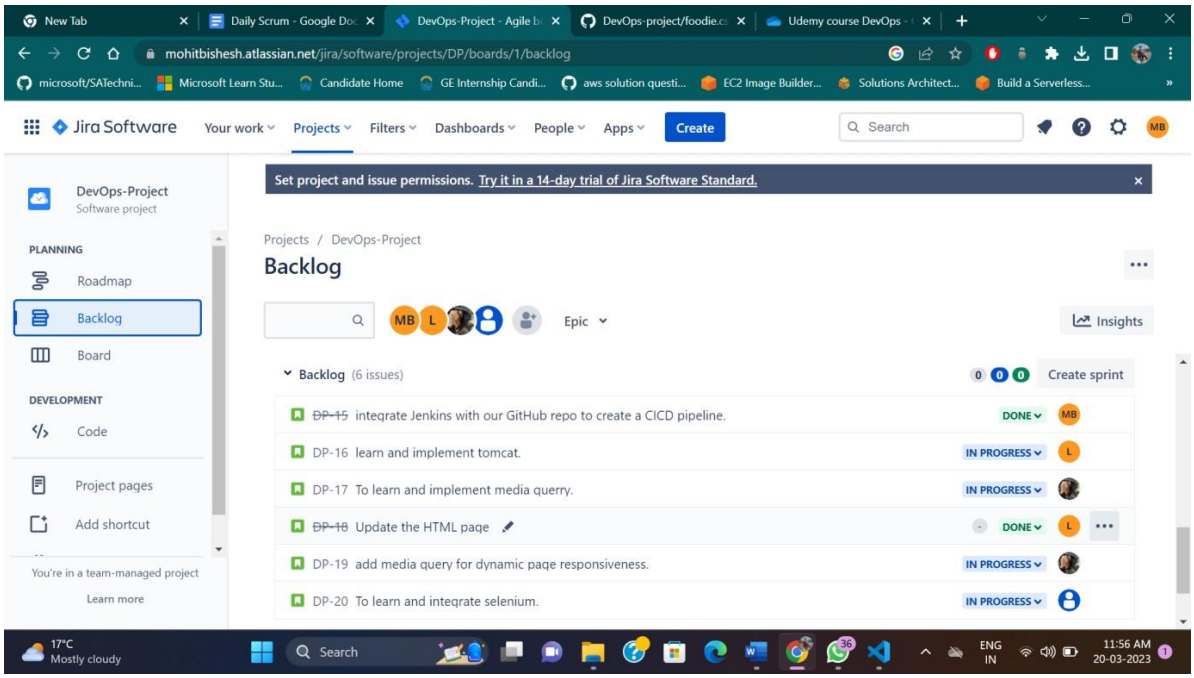
Sprint 2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Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
DevOps-Project
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
You're in a team-managed project
Learn more
Set project and issue permissions. Try it in a 14-day trial of Jira Software Standard.
Projects / DevOps-Project
Backlog
Epic
Insights
Backlog (6 issues)
Create sprint
DP-15 integrate Jenkins with our GitHub repo to create a CICD pipeline.
DONE
DP-16 learn and implement tomcat.
IN PROGRESS
DP-17 To learn and implement media querry.
IN PROGRESS
DP-18 Update the HTML page
DONE
DP-19 add media query for dynamic page responsiveness.
IN PROGRESS
DP-20 To learn and integrate selenium.
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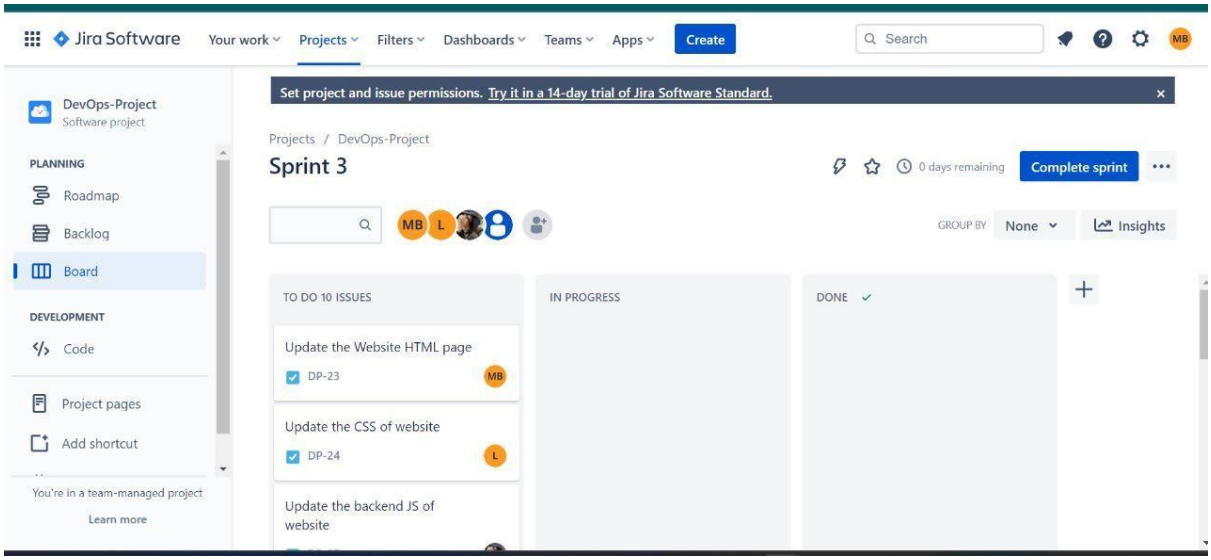
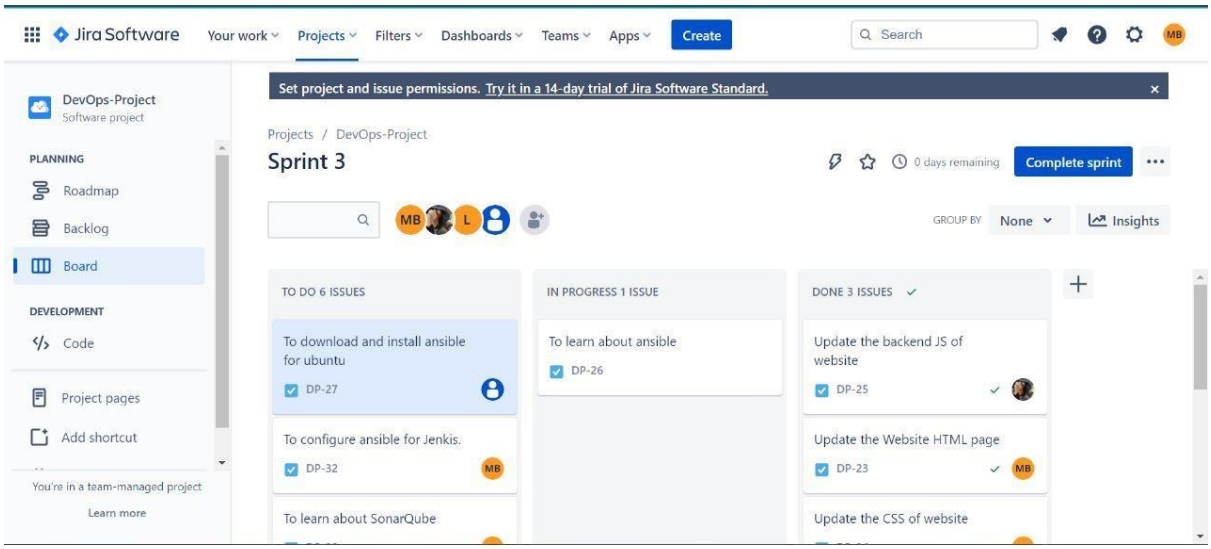
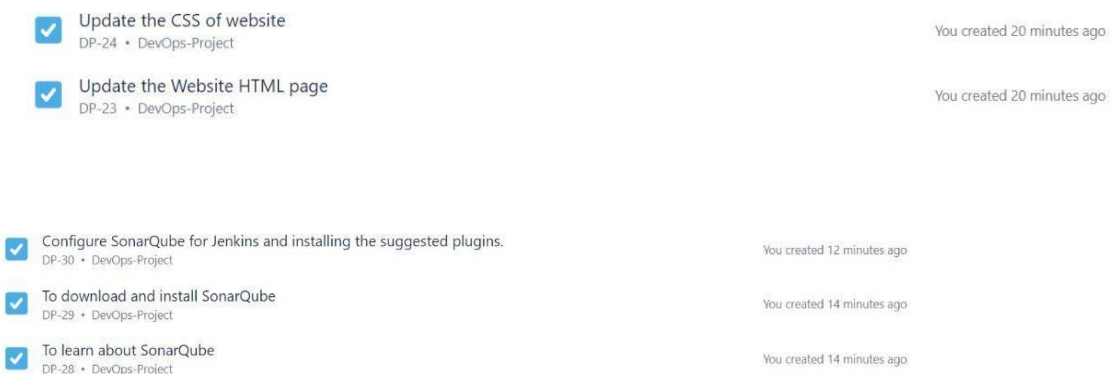
Sprint 3


Jira Software
Your work
Projects
Filters
Dashboards
Teams
Apps
Create
Search
DevOps-Project
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
You're in a team-managed project
Learn more
Set project and issue permissions. Try it in a 14-day trial of Jira Software Standard.
Projects / DevOps-Project
Sprint 3
0 days remaining
Complete sprint
GROUP BY
None
Insights
TO DO 10 ISSUES
IN PROGRESS
DONE
Update the Website HTML page
DP-23
Update the CSS of website
DP-24
Update the backend JS of website


Jira Software
Your work
Projects
Filters
Dashboards
Teams
Apps
Create
Search
DevOps-Project
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
You're in a team-managed project
Learn more
Set project and issue permissions. Try it in a 14-day trial of Jira Software Standard.
Projects / DevOps-Project
Sprint 3
0 days remaining
Complete sprint
GROUP BY
None
Insights
TO DO 6 ISSUES
IN PROGRESS 1 ISSUE
DONE 3 ISSUES
To download and install ansible for ubuntu
DP-27
To configure ansible for Jenkis.
DP-32
To learn about SonarQube
To learn about ansible
DP-26
Update the backend JS of website
DP-25
Update the Website HTML page
DP-23
Update the CSS of website

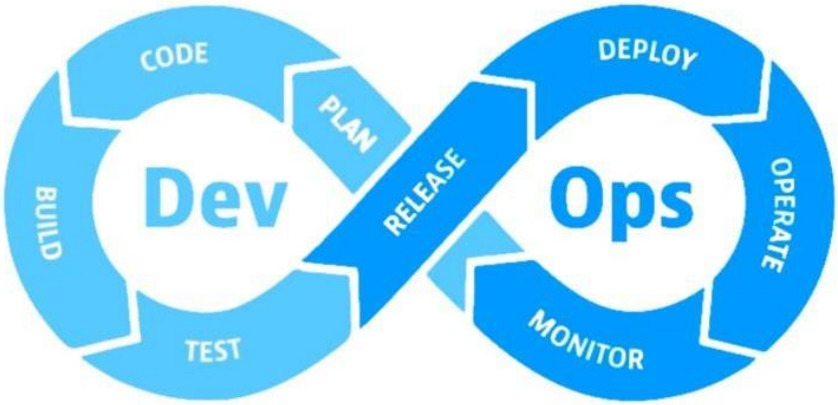

Update the CSS of website
DP-24 • DevOps-Project
You created 20 minutes ago
Update the Website HTML page
DP-23 • DevOps-Project
You created 20 minutes ago
Configure SonarQube for Jenkins and installing the suggested plugins.
DP-30 • DevOps-Project
You created 12 minutes ago
To download and install SonarQube
DP-29 • DevOps-Project
You created 14 minutes ago
To learn about SonarQube
DP-28 • DevOps-Project
You created 14 minutes ago

Sprint 4 (11 April - 20 April)

DP-33*	Make the website Responsive using media...	Task	Issue added to sprint
DP-34*	Add the functionality of Add to cart.	Task	Issue added to sprint
DP-35*	Added Motion features on images upon h...	Task	Issue added to sprint
DP-36*	Added the review section to our website.	Task	Issue added to sprint
DP-37*	Developed and updated the menu section.	Task	Issue added to sprint
DP-38*	updated the frontend css	Task	Issue added to sprint
DP-39*	learned about Jenkins file	Task	Issue added to sprint
DP-40*	learned about maven	Task	Issue added to sprint

Sprint 5 (21 April - 30 April)

Key	Summary	Issue type	Epic	Details of scope change
DP-41*	learn and install maven.	Task		Issue added to sprint
DP-42*	configure and integrate maven with Jenkins.	Task		Issue added to sprint
DP-43*	create pom.xlm file	Task		Issue added to sprint
DP-44*	install Docker	Task		Issue added to sprint
DP-45*	create container	Task		Issue added to sprint
DP-46*	learn docker file	Task		Issue added to sprint
DP-47*	create docker file	Task		Issue added to sprint
DP-48*	Deployment on Docker	Task		Issue added to sprint
DP-49*	Examine and validate CI/CD	Task		Issue added to sprint
DP-50*	Examine the deployment over cloud.	Task		Issue added to sprint


CODE
PLAN
BUILD
Dev
TEST
RELEASE
DEPLOY
OPERATE
Ops
MONITOR

THANKYOU